UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/841,080	04/25/2001	Takayuki Kurozumi	034620-092	5959

7590 09/29/2004

ROBERT E. KREBS
THELEN REID & PRIEST LLP
P.O. BOX 640640
SAN JOSE, CA 95164-0640

EXAMINER	
ZHENG, EVA Y	
ART UNIT	**PAPER NUMBER**
2634	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AZ

Office Action Summary	Application No. 09/841,080	Applicant(s) KUROZUMI ET AL.	
	Examiner Eva Yi Zheng	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/25/01*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7,9-17 and 19-22* is/are rejected.

7)☒ Claim(s) *8,18,23 and 24* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12/16/02*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-7, 9-17, and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takebayashi et al. (US 4,783,802) in view of Bossemeyer, Jr. (US 6,012,027).

a) Regarding claim 1, Takebayashi et al. disclose a signal detection method of searching an input time-series signal for a signal portion similar to a reference time-series signal which is registered in advance and is shorter than the input time-series signal, the method comprising:

a reference feature calculating step of obtaining a reference feature time-series signal from the reference time-series signal, where the reference feature time-series signal consists of feature vectors (16 in Fig. 1; Col 3, L36-38);

an input feature calculating step of obtaining an input feature time-series signal from the input time-series signal, where the input feature time-series signal consists of feature vectors (14 in Fig. 1; Col 3, L32-36);

a reference feature coding step of converting the reference feature time-series signal into a reference coded time-series signal consisting of codes which indicate classifications (Fig. 3; Col 3, L 30- Col 4, L 9);

an input feature coding step of converting the input feature time-series signal into an input coded time-series signal consisting of codes which indicate classifications (Fig. 3; Col 3, L 30- Col 4, L 9);

a distortion adding step of adding a distortion to at least one of the reference the input feature time-series signal, the reference coded time-series signal, and the input coded time-series signal (Fig, 5; Col 7, L21-49).

Takebayashi et al. disclose all of the subject matter as described above except for the specific teaching of generating histograms for calculating a degree of similarity between the reference and input coded time-series signal.

Bossemeyer, Jr., in the same field of endeavor, teaches a histogram collating step of determining a collation portion in the input coded time-series signal, generating histograms of both the reference coded time-series signal and the collation portion of the input coded time-series signal, and calculating a degree of similarity between the reference coded time-series signal and the collation portion based on the generated histograms (Fig. 14; Col 9, L11-17 and Fig. 9A), and

wherein the degree of similarity is compared with a predetermined target degree of similarity (362 in Fig. 9A), and the histogram collating step is repeatedly executed while changing the collation portion in the input coded time-series signal, thereby determining whether the reference time-series signal is present in the relevant portion of the input time-series signal (Fig. 9A).

The amplitude histogram measures the number of samples in each bit of amplitude from the digitizer. A poorly performing digitizer can degrade the performs of

the speech reference system (Col 9, L12-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the pattern matching section by Takebayashi et al. with Bossemeyer, Jr.'s histogram and degree of similarity method in order for better and more accurate speech signal detection, processing, matching and recognition.

b) Regarding claims 2 and 12, Takebayashi et al. disclose a signal detection method/apparatus, wherein when the distortion is added to any one of the reference time-series signal and the input time-series signal in the distortion adding step, a plurality of distortions are added to a signal portion corresponding to each time section of said one of the reference time-series signal and the input time-series signal (Fig. 5; Col 7, L21-49).

c) Regarding claims 3 and 13, Takebayashi et al. disclose a signal detection method/apparatus, wherein when the distortion is added to any one of the reference feature time-series signal and the input feature time-series signal in the distortion adding step, a plurality of distortions are added to each feature vector of said one of the reference feature time-series signal and the input feature time-series signal (Fig. 5; Col 7, L21-49).

d) Regarding claim 4 and 14, Takebayashi et al. disclose a signal detection method/apparatus, wherein when the distortion is added to any one of the reference coded time-series signal and the input coded time-series signal in the distortion adding step, a plurality of distortions are added to each code of said one of the reference coded time-series signal and the input coded time-series signal (Fig. 5; Col 7, L21-49).

e) Regarding claim 5 and 15, Takebayashi et al. disclose a signal detection method/apparatus, further comprising:

a learning step of calculating, in advance, an amount of distortion used for distorting features in the distortion adding step (Col 7, L 26-30), and

wherein in the distortion adding step, the distortion is added based on the amount of distortion calculated in the learning step (Col 7, L 30-40).

f) Regarding claim 6 and 16, Takebayashi et al. disclose a signal detection method/apparatus, wherein the amount of indicating whether the reference time-series signal is present in the relevant portion of the input time-series signal (Col 7, L 21-30).

e) Regarding claim 7 and 17, Takebayashi et al. disclose a signal detection method/apparatus, wherein in the distortion adding step, the add distortion is generated using random numbers (Fig. 5; Col 7, L21-49). It is well known that noise or distortion signals are generated by randomly analog or digital numbers.

f) Regarding claims 9 and 19, Takebayashi et al. disclose all the subject matters described above except for the specific teaching of the input time-series signal and the reference time-series signal are each picture signals. However, it is well known that a speech signal detection is similar to video signal detection. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to conclude that the speech system by Takebayashi et al. can be used for picture signal detection.

g) Regarding claims 10 and 20, Takebayashi et al. disclose a signal detection method/apparatus, wherein the input time-series signal and the reference time-series signal are each audio signals (as shown in Fig. 1; abstract).

h) Regarding claim 11, Takebayashi et al. disclose a signal detection apparatus for searching an input time-series signal for a signal portion similar to a reference time-series signal which is registered in advance and is shorter than the input time-series signal, the apparatus comprising:

a reference feature calculating section for obtaining a reference feature time-series signal from the reference time-series signal, where the reference feature time-series signal consists of feature vectors (16 in Fig. 1; Col 3, L36-38);

an input feature calculating section for obtaining an input feature time-series signal from the input time-series signal, where the input feature time-series signal consists of feature vectors (14 in Fig. 1; Col 3, L32-36);

a reference feature coding section for converting the reference feature time-series signal into a reference coded time-series signal consisting of codes which indicate classifications (Fig. 3; Col 3, L 30- Col 4, L 9);

an input feature coding section for converting the input feature time-series signal into an input coded time-series signal consisting of codes which indicate classifications (Fig. 3; Col 3, L 30- Col 4, L 9);

a distortion adding section for adding a distortion to at least one of the reference the input feature time-series signal, the reference coded time-series signal, and the input coded time-series signal (Fig, 5; Col 7, L21-49).

Takebayashi et al. disclose all of the subject matter as described above except for the specific teaching of generating histograms for calculating a degree of similarity between the reference and input coded time-series signal.

Bossemeyer, Jr., in the same field of endeavor, teaches a histogram collating section of determining a collation portion in the input coded time-series signal, generating histograms of both the reference coded time-series signal and the collation portion of the input coded time-series signal, and calculating a degree of similarity between the reference coded time-series signal and the collation portion based on the generated histograms (Fig. 14; Col 9, L11-17 and Fig. 9A), and

wherein the histogram collating section determines different collation portion in the input coded time-series signal in turn, calculates the degree of similarity for each collation portion, compares the calculated degree of similarity with a predetermined target degrees of similarity (362 in Fig. 9A), and repeatedly executes the comparison for each determined collation portion, thereby determining whether the reference time-series signal is present in the relevant portion of the input time-series signal (Fig. 9A).

The amplitude histogram measures the number of samples in each bit of amplitude from the digitizer. A poorly performing digitizer can degrade the performs of the speech reference system (Col 9, L12-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the pattern matching section by Takebayashi et al. with Bossemeyer, Jr.'s histogram and degree of similarity method in order for better and more accurate speech signal detection, processing, matching and recognition.

i) Regarding claim 21, Takebayashi et al. disclose a program for making a computer execute a signal detecting operation of searching an input time-series signal for a signal portion similar to a reference time-series signal which is registered in advance and is shorter than the input time-series signal, the operation comprising:

a reference feature calculating step of obtaining a reference feature time-series signal from the reference time-series signal, where the reference feature time-series signal consists of feature vectors (16 in Fig. 1; Col 3, L36-38);

an input feature calculating step of obtaining an input feature time-series signal from the input time-series signal, where the input feature time-series signal consists of feature vectors (14 in Fig. 1; Col 3, L32-36);

a reference feature coding step of converting the reference feature time-series signal into a reference coded time-series signal consisting of codes which indicate classsitications (Fig. 3; Col 3, L 30- Col 4, L 9);

an input feature coding step of converting the input feature time-series signal into an input coded time-series signal consisting of codes which indicate classifications; (Fig. 3; Col 3, L 30- Col 4, L 9);

a distortion adding step of adding a distortion to at least one of the reference time-series signal, the input time-series signal, the reference feature time-series signal, the input feature time-series signal, the reference coded time-series signal, and the input coded time-series signal (Fig, 5; Col 7, L21-49).

Takebayashi et al. disclose all of the subject matter as described above except for the specific teaching of generating histograms for calculating a degree of similarity between the reference and input coded time-series signal.

Bossemeyer, Jr., in the same field of endeavor, teaches a histogram collating step of determining a collation portion in the input coded time-series signal, generating histograms of both the reference coded time-series signal and the collation portion of the input coded time-series signal, and calculating a degree of similarity between the reference coded time-series signal and the collation portion based on the generated histograms (Fig. 14; Col 9, L11-17 and Fig. 9A), and

wherein the degree of similarity is compared with a predetermined target degree of similarity (362 in Fig. 9A), and the histogram collating step is repeatedly executed while changing the collation portion in the input coded time-series signal, thereby determining whether the reference time-series signal is present in the relevant portion of the input time-series signal (Fig. 9A).

The amplitude histogram measures the number of samples in each bit of amplitude from the digitizer. A poorly performing digitizer can degrade the performs of the speech reference system (Col 9, L12-18). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to substitute the pattern matching section by Takebayashi et al. with Bossemeyer, Jr.'s histogram and degree of similarity method in order for better and more accurate speech signal detection, processing, matching and recognition.

3. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takebayashi et al. in view of Bossemeyer, Jr., and further in view of Langberg et al. (US 5,852,630).

Takebayashi et al. and Bossemeyer, Jr. disclose all the subject matters described above except for the specific teaching of a computer readable storage medium storing a program.

However, Langberg et al. teaches that the method and apparatus for a transceiver warm start activation procedure with precoding can be implemented in software stored in a computer readable medium. The computer readable medium is an electronic, magnetic optical, or other physical device or means that can be contain or store a computer program for use by or in connection with a computer related system for method (Col 3, L51-65). One skilled in the art would have clearly recognized that the method of Takebayashi et al. and Bossemeyer, Jr. would have been implemented in software. The implemented software would perform same function of the hardware for less expense, adaptability, and flexibility. Therefore, it would have been obvious to use the software in the system of Takebayashi et al. and Bossemeyer, Jr. as taught by Langberg et al. in order to reduce cost and improve the adaptability and flexibility of the communication system.

Allowable Subject Matter

4. Claims 8, 18, 23, and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng
Examiner
Art Unit 2634

September 20, 2004

Shuwang Liu

SHUWANG LIU
PRIMARY EXAMINER